

## REMARKS

### *Status of the Application*

In the Office Action, claims 13, 15-19, 25 and 26 were rejected, and claims 14 and 20-24 were objected to. In the present Amendment, claim 13 has been amended so that claims 13-26 are pending.

Applicants have further defined the claimed coating composition of claim 13 as being an "electrically insulative" coating composition. Support for this amendment can be found throughout pages 1-2 and at page 11, lines 16-24.

Applicants have also further defined the element-oxygen network of their claimed coating composition as involving a chemical reaction between either the reactive particles of component A and the binders of component B, or just reactive particles of component A that have at least radicals of reactive resin components as function  $R_1$  so as to form an inorganic-organic-oxygen network after the coating is applied and cured. Support for this amendment can be derived from the description of the components of the claimed coating composition as set forth on pages 4-9.

Applicants have also further defined the inorganic-organic-oxygen network by indicating that when the reactive function  $R_1$  comprises radicals selected from the group consisting of metal acid esters, NCO, urethane groups, epoxide groups, epoxy, carboxylic acid anhydride, C=C double bond systems, OH, alcohols bound by way of oxygen, alcohols bound by way of esters, alcohols bound by way of ethers, chelating agents, COOH,  $NH_2$ , and  $NHR_4$ , the formation of the inorganic-organic-oxygen network requires component B to be present. Support for this amendment can be found at page 10, second paragraph, and in Examples 2-5. No new matter has been added.

### Objection to Claims 14 and 20-24

Claims 14 and 20-24 have been objected to for depending from a rejected base claim. The Examiner, however, indicates that these claims would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. The Examiner takes the position that claims 14 and 20-24 would be allowable if rewritten because 1) the thermal curing steps of Applicants' claimed process are novel and unobvious over the prior art, and 2) the specific reactive particles claimed by Applicants in claim 14 would produce a coating

composition that is novel and nonobvious over the prior art. More specifically, the Examiner asserts that the "closest prior art, Vassiliou, discloses a coating composition comprising colloidal silica, a fluorocarbon polymer, and a number of additives", but "does not mention the curing of the fluorocarbon composition at an elevated temperature, nor does the reference mention the use of crosslinking agents." The Examiner further explains that Vassiliou "does not suggest the applicant's R<sub>1</sub> radicals of claim 14."

The Applicants, however, submit that in light of the comments contained herein below claim 13 is neither rendered obvious, nor anticipated by Vassiliou or Majumdar. Accordingly, Applicants submit that claim 13 is in condition for allowance thereby obviating the Examiner's objections as to claims 14 and 20-24. Withdrawal of these objections is respectfully requested.

***Rejections Under 35 U.S.C § 102(e)***

Claims 13, 15-18 and 25 stand rejected under 35 U.S.C § 102(e) as being anticipated by Majumdar (U.S. Patent No. 6,171,769 B1). The Examiner asserts that Majumdar discloses a "photographic element comprising an antistatic coating layer on a substrate, where the antistatic layer comprises a colloidal silica, a polymeric binder, and an electrically conductive element...." The Examiner takes the position that the photographic element, as a result of containing an electrically conductive element, is itself an electrical conductor. The Examiner also asserts that the preferred colloidal silica is Ludox® AM, which is a silica modified to contain hydroxyl groups, and that the silica is present as a silica-oxygen network in the form of 5-25 nm particles. Finally, the Examiner asserts that a "wide range for weight ratios of silica to binder, where additives can also be included" are disclosed. In accordance with these assertions, the Examiner takes the position that one of ordinary skill in the art would envision both the Applicants' claimed weight ratios of the components, and the hydroxyl groups being present in the applicant's range of "up to 98 wt.%".

The Examiner further asserts that claims 15-16 of Applicants' claimed invention limit R<sub>3</sub> and R<sub>4</sub> "without limiting the reactive particles to contain additional radicals R<sub>3</sub> and R<sub>4</sub>." The Examiner claims that Majumdar does not contain R<sub>3</sub> and R<sub>4</sub> radicals because the silica particles of Majumdar do not have additional functionality, and therefore Majumdar anticipates the present invention, despite the R<sub>3</sub> and R<sub>4</sub> limitations of claims 15-16.

Applicants, however, respectfully disagree with the Examiner's stated position, and respectfully assert that the electrically conductive coating composition disclosed by Majumdar does not anticipate the electrically insulative coating composition claimed by Applicants. In fact, Applicants have further defined their claimed invention by inserting a whereby clause to indicate that their claimed coating composition is electrically insulative. Indeed, although Applicants disagree with the Examiner's assertion that coating photographic paper with an antistatic layer containing a conductive agent causes the photographic paper to be transformed into an electrical conductor, Applicants assert that the Examiner's characterization of the photographic paper as an electrical conductor definitively indicates that Majumdar does not contain the electrically insulative limitation of Applicants' claimed coating composition.

In addition, Majumdar fails to disclose the organic-inorganic-oxygen network limitation inserted by Applicants to further define the element-oxygen network of their claimed invention. As a result, Majumdar does not anticipate Applicants' claimed coating composition because Majumdar fails to disclose every limitation of the claimed coating composition.

Moreover, Majumdar's disclosure fails to put the public in possession of Applicants' claimed electrically insulative coating composition before Applicants' date of invention, and therefore is not enabling. As stated in Section 2121.01 of the MPEP "[s]uch possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." The disclosure of Majumdar, however, indicates that a conducting agent must be added to his coating composition in order for the photographic paper backing to possess the antistatic properties that are desired. If, however, an electrically conductive agent, such as those disclosed in Majumdar, were to be added to Applicants' claimed electrically insulative coating composition, the insulative properties of Applicants' claimed invention would be completely destroyed. As nothing in the disclosure of Majumdar indicates that leaving out the electrically conductive agent of Majumdar would have resulted in a coating that could be successfully used to insulate wire, and a person of ordinary skill in the art would not have been able to determine based on his or her knowledge at the time the invention was made, that leaving out the electrically conductive agent

of Majumdar would successfully produce an electrically insulative coating having an increased partial discharge resistance, e.g., under the effect of high voltages or pulse shaped voltages, the public was not in possession of Applicants' claimed electrically insulative, and therefore electrically nonconductive, coating composition. As a result, the disclosure of Majumdar is not enabling.

In sum, Majumdar does not anticipate Applicants' claimed invention because 1) Majumdar neither discloses, nor contains the electrically insulative limitation of Applicants' claimed invention, 2) Majumdar neither discloses, nor contains the organic-inorganic-oxygen network limitation of Applicants' claimed invention, and 3) the disclosure of Majumdar did not put the public in possession of Applicants' electrically insulative, and therefore electrically nonconductive, coating composition prior to Applicants' date of invention, and therefore it was not an enabling disclosure. Accordingly, Applicants' respectfully request that the Examiner withdraw this rejection.

***Rejections Under 35 U.S.C § 102(b)***

Claims 13, 15-19 and 25-26 stand rejected under 35 U.S.C § 102(b) as being anticipated by Vassiliou (U.S. Patent No. 3,986,993) as evidenced by Majumdar (U.S. Patent No. 6,171,769 B1). The Examiner asserts that Vassiliou discloses "a coating composition comprising a colloidal silica, a fluorocarbon polymer, and a number of additives", wherein the colloidal silica used is preferably Ludox® AM, and is preferably comprised of particles ranging in size from 7 to 25 millimicrons. The Examiner further asserts that in Majumdar Ludox AM is referred to "as a silica modified to contain hydroxyl groups.

The Examiner also claims that "[c]omposition A shows ~31wt.% colloidal silica, ~46 wt.% of polymer binder dispersion, and ~23 wt.% of additives or solvents." In view of the disclosures in Majumdar regarding surface modification of Ludox® AM silica particles, the Examiner takes the position that one of ordinary skill in the art would envision hydroxyl groups being present in the applicant's range of "up to 98 wt.%". The Examiner further claims that because the coatings prepared according to Vassiliou are intended to coat metal substrates, Vassiliou is in effect "providing coatings for electrically conductive substrates".

The Examiner further asserts the claims 15-16 of Applicants' invention limit R3 and R4 "without limiting the reactive particles to contain additional radicals R3

and R4.” The Examiner asserts that as “the further limitations of each additional radical provide no patentable weight over the prior art”, the absence of R3 and R4 from Vassiliou would not render Applicants’ claimed invention novel, and therefore despite the R3 and R4 limitations of claims 15-16 Vassiliou also anticipates claims 15-16 of Applicants’ claimed invention.

Finally, the Examiner alleges that Vassiliou anticipates claim 19 because it “teaches the addition of a silicone resin as an anti-mudcracking agent ....”

Applicants, however, have further defined the element-oxygen network of their claimed coating composition as an inorganic-organic-oxygen network, and therefore respectfully disagree with the Examiner as the fluorocarbon coating composition of Vassiliou does not contain the inorganic-organic-oxygen network of Applicants’ claimed coating composition. Instead, the colloidal silica of Vassiliou is being utilized as an inorganic component in an inorganic-oxygen network, whereas the components of Applicants’ claimed invention are being reacted so as to produce an inorganic-organic-oxygen network.

In fact, although the composition of Vassiliou contains fluorocarbon polymers and colloidal silica, it becomes readily apparent upon reviewing the disclosure of Vassiliou that the fluorocarbon polymer and colloidal silica contained in Vassiliou’s composition cannot form the organic-inorganic-oxygen network claimed by Applicants. Indeed, Vassiliou expressly indicates at column 2, lines 3-12 that his fluorocarbon polymers are “completely substituted with fluorine atoms or a combination of fluorine atoms and chlorine atoms”, thereby indicating that the fluorocarbon polymers of Vassiliou do not have any chemical groups available to react with the OH-groups of the colloidal silica. Moreover, Vassiliou further indicates at column 3, lines 1-19, that his fluorocarbon polymers and colloidal silica are contained in his coating composition as two separate colloidal species, and that these separately existing colloidal species form two separate networks, and not one single organic-inorganic-oxygen network. Additionally, Vassiliou further indicates at column 3, lines 1-19 that when the coating composition of Vassiliou is baked to form a finish the network of the fluorocarbon polymers occupies the empty spaces of the network of the colloidal silica. Vassiliou never mentions that the fluorocarbon polymers and colloidal silica are, or can be, chemically bonded together to form the organic-inorganic-oxygen network claimed by Applicants. In contrast, Vassiliou

expressly indicates that both of these components are contained either in the coating composition as separate and distinct colloidal species, or in the finish as separate and distinct networks.

As the fluorocarbon polymer and colloidal silica contained in Vassiliou's composition cannot form an organic-inorganic-oxygen network by chemically bonding to each other, Vassiliou's composition cannot possibly obtain the high partial discharge resistance that is obtained by the coating composition according to Applicants' claimed invention. More specifically, the organic and inorganic components of Applicants' claimed coating composition do not exist as separate entities, but instead chemically bond to each other to form an organic-inorganic-oxygen network. It is through the formation of this organic-inorganic-oxygen network that a coating composition having high partial discharge resistance is obtained by Applicants. As a result, even if a wire were to be coated with the composition of Vassiliou, the high partial discharge resistance obtained by the wires coated with the composition according to Applicants' claimed invention would not be obtained.

In addition, Vassiliou does not anticipate Applicants' claimed invention because Vassiliou neither contains, nor discloses the electrically insulative limitation inserted by Applicants in independent claim 13 to further define their invention.

As a result, Applicants' claimed coating composition is not anticipated by Vassiliou because 1) the organic-inorganic-oxygen network limitation contained in Applicants' claimed coating composition is neither contained in, nor disclosed by Vassiliou, and 2) the electrically insulative limitation contained in Applicants' claimed coating composition is neither contained in, nor disclosed by Vassiliou. Accordingly, Applicants respectfully request that the Examiner withdraw this rejection.

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**Summary**

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. In order to expedite disposition of this case, the Examiner is invited to contact Applicant's representative at the telephone number below to resolve any remaining issues. Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully submitted,



Hilmar L. Fricke  
Attorney For Applicants  
Registration No. 22,384  
Telephone: (302) 992-6058  
Facsimile: (302) 658-1192

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